TEST REPORT

According to CFR 47 Part 15

MagIC X1000 DECT 2.4

N°21201-01-CC-1-A

GYL technologies
Parc d'activités de Lanserre
21 rue de la Fuye
49610 JUIGNE SUR LOIRE
FRANCE
Tel. : +33 (0) 2.41.57.57.40
Fax : +33 (0) 2.41.45.25.77

This report concerns :	**Original grant** ☑ **Class II change** ☐
Equipment tested :	**MagIC X1000 DECT 2.4**
Equipment FCC ID :	**SPBMX1KDCT24**
Designed by :	**AXALTO S.A.** **50 Avenue Jean Jaurès** **92120 MONTROUGE**
Manufactured by :	**AXALTO S.A.** **50 Avenue Jean Jaurès** **92120 MONTROUGE**

Deferred grant requested per 47 CFR 0.457 (d)(1)(ii) **YES** ☐ **NO** ☑

if yes, defer until :

Company Named agrees to notify the Commission by :

of the intended date of announcement of the product so that the grant can be issued on the date

Transition rules requested per 15.37? **YES** ☐ **NO** ☑

If no, assumed Part 15, Subpart B for intentional or unintentional radiator
The new 47 CFR [10-1-96 edition] provision

Summary

1 Reference and record of revisions of the test report :

Test report number :	Revision :	Number of pages	Modification reasons :
21201-01-CC-1-a	a	31	Creation
Redactor : O.ROY			**Date of writing** : October 3, 2005
Technical control: O. ROY 			**Quality Control: L. MONTIEL** 

2 Interpretation and remarks :

2.1 RESULTS :

This equipment complies with the rules of the FCC section 15.247 and related sections concerning its radio functions

This equipment complies with the rules of the FCC section 15.107, 15.109 and related sections concerning its ITE (Information Technology Equipment) functions (printer, card reader, phone line…).

3 GENERAL INFORMATION :

3.1 APPLICANT :

AXALTO SA
50 Avenue Jean Jaurès
92120 MONTROUGE

3.2 MANUFACTURER :

AXALTO SA
50 Avenue Jean Jaurès
92120 MONTROUGE

3.3 TEST DATE :

10 to 12 May 2005

3.4 TEST SITE :

GYL Technologies
Parc d'activités de Lanserre
49610 Juigné sur Loire – France
FCC registration Number : 90469

4 INTRODUCTION :

The following test report for portable point of sales terminal (2.4 GHz radio link) is written in accordance with Part 15 of the Federal Communications Commissions. The Equipment Under Test (EUT) was MagIC X1000 DECT 2.4 (T0458XX handset +T0456XX base). The test results reported in this document relate only to the item that was tested.

It was not possible to have simultaneously all the functions of the product activated so some measurements have been done twice. One time with radio link activated and another time with other functions (printer, ...)

All measurements contained in this Application were conducted in accordance with ANSI C63.4 Methods of Measurement of Radio Noise Emissions of 2001. The instrumentation utilized for the measurements conforms to the ANSI C63.4 standard for EMI and Field Strength Instrumentation. Some accessories are used to increase sensitivity and prevent overloading of the measuring instrument. These are explained in this report. Calibration checks are performed regularly on the instruments, and all accessories including the high pass filter, preamplifier and cables.

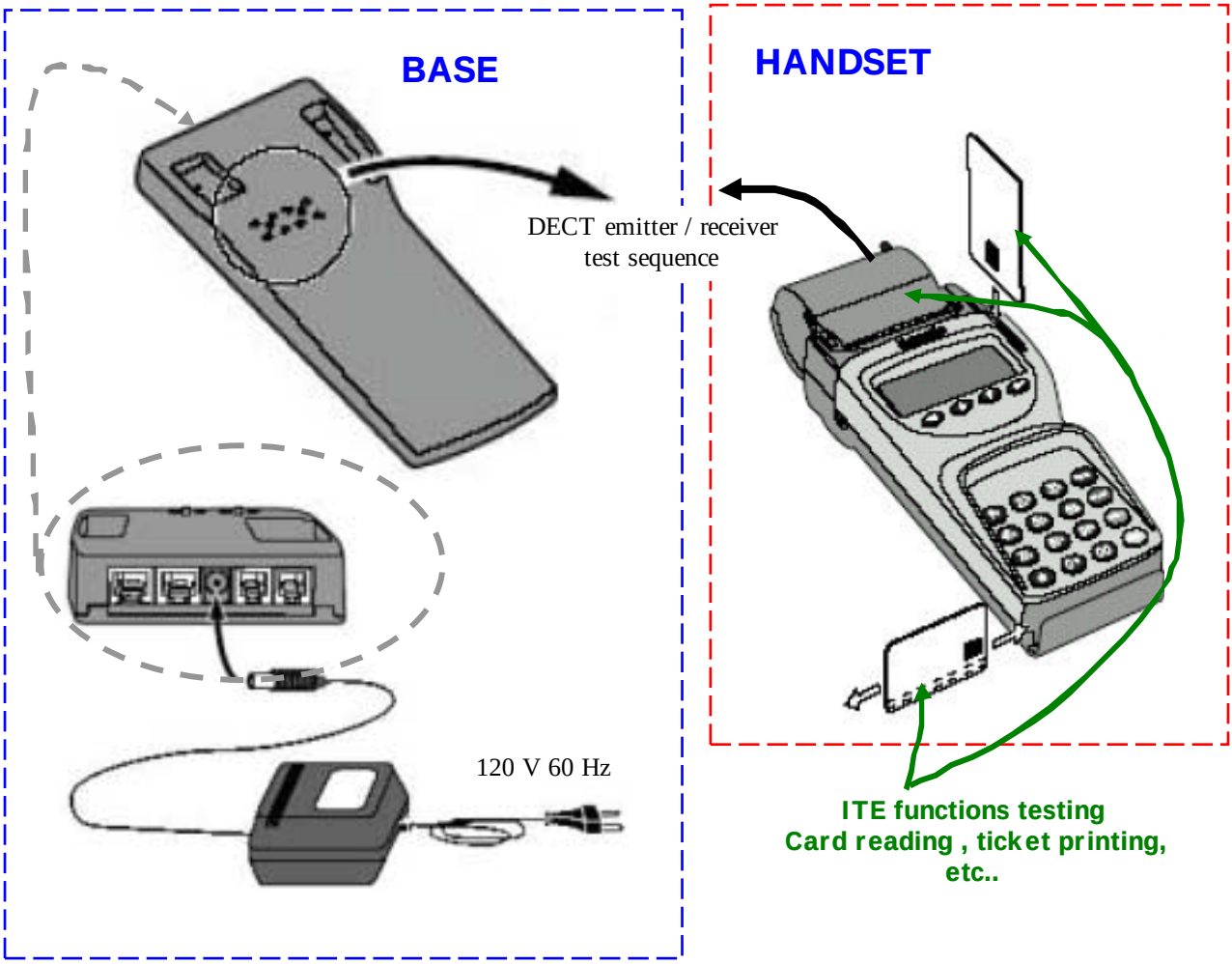
All radiated and conducted emissions measurements were performed manually at GYL TECHNOLOGIES. The radiated emissions measurements required by the rules were performed on the three to ten meters, open field, test site maintained by GYL Technologies Parc d'activités de Lanserre, 49610 Juigné sur Loire , France. Complete description and site attenuation measurement data have been placed on file with the Federal Communications Commission.

The power line conducted emission measurements were performed in a shielded enclosure also located at the Parc d'activités de Lanserre, 49610 Juigné sur Loire, France facility

5 MEASUREMENT EQUIPMENT LIST :

PART TYPE	MANUFACTURER	MODEL	GYL TECHNOLOGIES NUMBER	CALIBRATION DATE
RECEIVERS				
Receiver	Rohde & Schwarz	ESI 7	M02020	April-05
Spectrum analyzer	Rohde & Schwarz	FSEM 30	M02021	April-05
Filter 150 kHz	Rohde & Schwarz	EZ25	M02040	July-04
ARTIFICIAL MAINS NETWORKS				
LISN (50µH / 5/50Ω)	Rohde & Schwarz	ESH3-Z5	M02027	Nov-04
ANTENNAS				
Bilog (30-2000MHz)	CHASE	CBL-6112	M02031	Aug-04
Bilog (30-2000MHz)	CHASE	CBL-6112	M02032	Aug-04
Horn antenna	EMCO	3115	M02045	None
Horn antenna	EMCO	3160-09	M04002	None

CONFIGURATION OF TESTED SYSTEM :



6 EXERCISING TEST CONDITIONS :

6.1 For § 8 : Measurements according to §15.207 and 15.209 of FCC CFR 47

Measurements are done with the base charging the handset battery and with a communication between the base and the handset for conductive measurement on power supply.

For radiated measurement below 2 GHz handset and base are 0.75 m separated and on permanent radio communication. (both are measured)

For radiated measurement above 2 GHz handset and base are more than 5 m separated and on permanent radio communication. (they are measured separately)

For conducted measurement on antenna ports, the configuration was chosen to transmit on one channel with or without modulation or in hopping mode in all channel's depending on the parameter to be measured.

6.2 For § 9 : Measurements according to §15.107 and 15.109 of FCC CFR 47

Measurements are done with the base charging the handset battery and with, continuous ticket printing smart cart reading and phone line activated which was the worst case.

7 CONFORMANCE STATEMENT :

7.1 STANDARDS REFERENCED FOR THIS REPORT :

PART 2: 2004	Frequency allocations and Radio Treaty Matters General Rules and Regulations
PART 15: 2004	Radio frequency devices
ANSI C63.4-2001	Standard format measurements/technical report personal computer and peripherals

7.2 JUSTIFICATION :

As mentioned in paragraph 5 of this report, the equipment is information technology equipment. It can be installed in residential commercial or light industry areas the following sub clause of the standard mentioned above are

- Part 15.107 and 15.109 for respectively conducted and radiated emission for unintentional radiator (printer, card reader mode…).
- Part 15.207 and 15.209 (subpart C) for respectively conducted and radiated emission for intentional radiator.
- Part 15.247 for intentional radiator in ISM band 2.400-2.4835 GHz

8 TEST ACCORDING TO CFR 47 Part 15

Tests performed by Olivier ROY at GYL Technologies laboratories from 10 to 12 May of 2005.

8.1 REFERENCE DOCUMENTATION :

FCC part 15 (Sub part B) §15.207, 15.209 and 15.247 of 2005

8.2 POWER LINE CONDUCTED EMISSIONS MEASUREMENTS (15.207):

The power line conducted emission measurements were performed in a semi anechoic chamber. The EUT was assembled on a non conductive 80 centimeters high wooden table. Power was fed to the EUT through a 50 ohm / 50 micro-Henry Line Impedance Stabilization Network (EUT LISN). The EUT LISN was fed power through an A.C. filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. The spectrum analyzer was connected to the A.C. line through an isolation transformer. The 50-ohm output of the EUT LISN was connected to the spectrum analyzer input through a Rohde and Schwartz 150 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 150 kHz. Conducted emission levels were measured on each current-carrying line with the receiver operating in the CISPR quasi-peak mode (or average mode if applicable

8.3 RESULTS :

The conducted emissions initial measurement consists of a prescan (tester in receiver mode), in order to determine the maximum quasi peak and average values.

- If the conducted emissions have limits showing a margin lower than 5dB, data collection measurement is performed on the six (6) highest frequencies to determine the compliance of the EUT.
- If the conducted emissions have limits showing a margin greater than 5dB, data collection measurement is not performed and the curves are given as evidence of compliance.

The following tables lists worst-case conducted emission data. Specifically: emission frequency, measurement level (including cable loss and transducer factors) in quasi-peak and average mode and margin.

The conducted test was performed with the EUT exercise program loaded, and the emissions were scanned between 150 kHz to 30 MHz on the NEUTRAL SIDE and LIVE SIDE, herein referred to as Neutral, and Live respectively.

ESI 7 EMI TEST RECEIVER IN RECEIVER MODE	
Peak measurement time	5 ms
step size	4KHz
Preamplifier	OFF
Preselector	ON
Resolution, Band With	9 kHz
Final Quasi Peak measurement time	1 s minimum
Final average measurement time	1 sec minimum

All readings are quasi-peak unless stated otherwise.

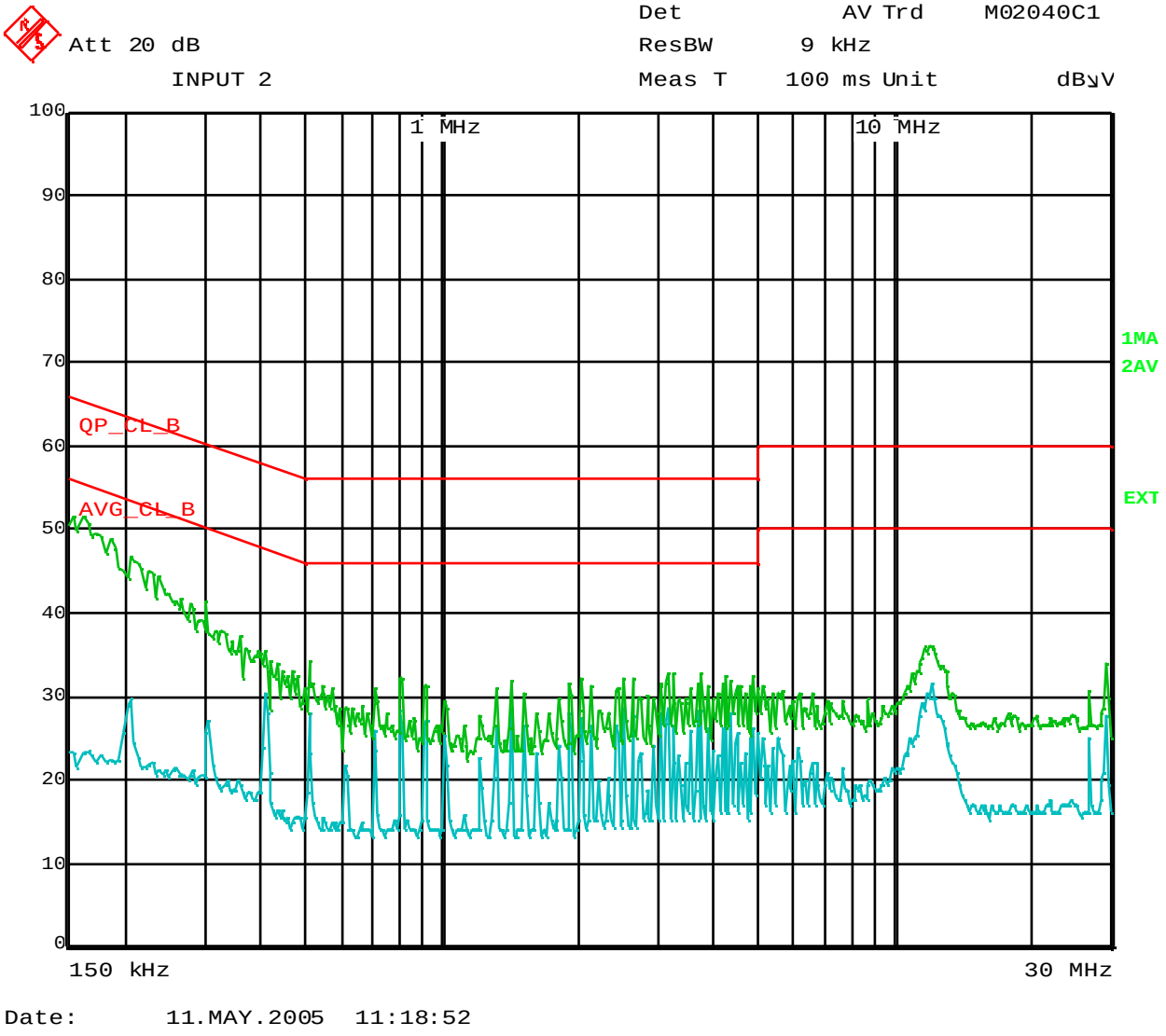
8.3.1 Schlumberger Power supply

8.3.1.1 Neutral :

Since no peak emissions were detected above average or quasi-peak limits data collection measurement were not performed on the EUT.

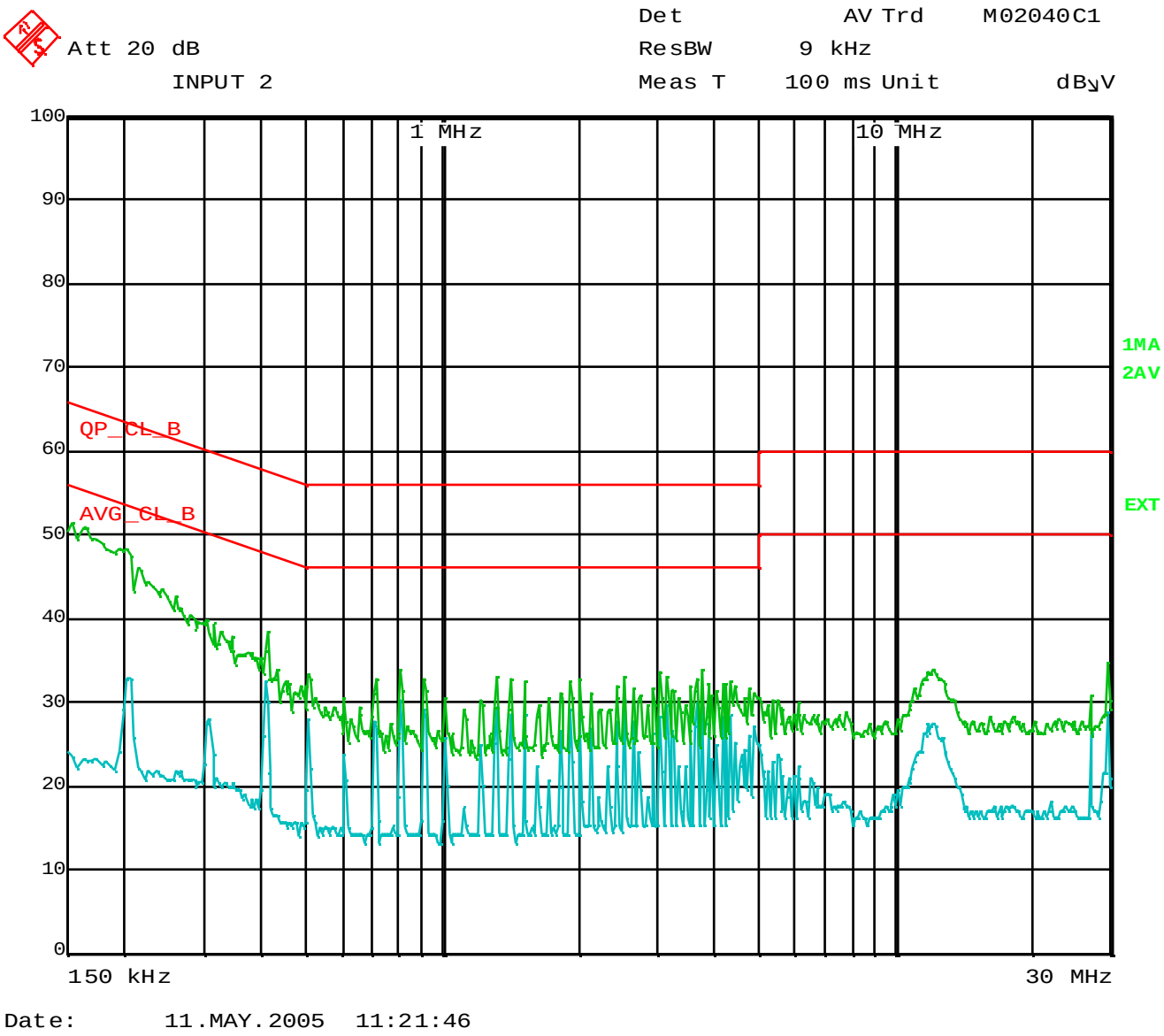
Legend: Blue curve represents average values

Green curve represents the peak values



8.3.1.2 LIVE :

Since no peak emissions were detected above average or quasi-peak limits data collection measurement were not performed on the EUT.

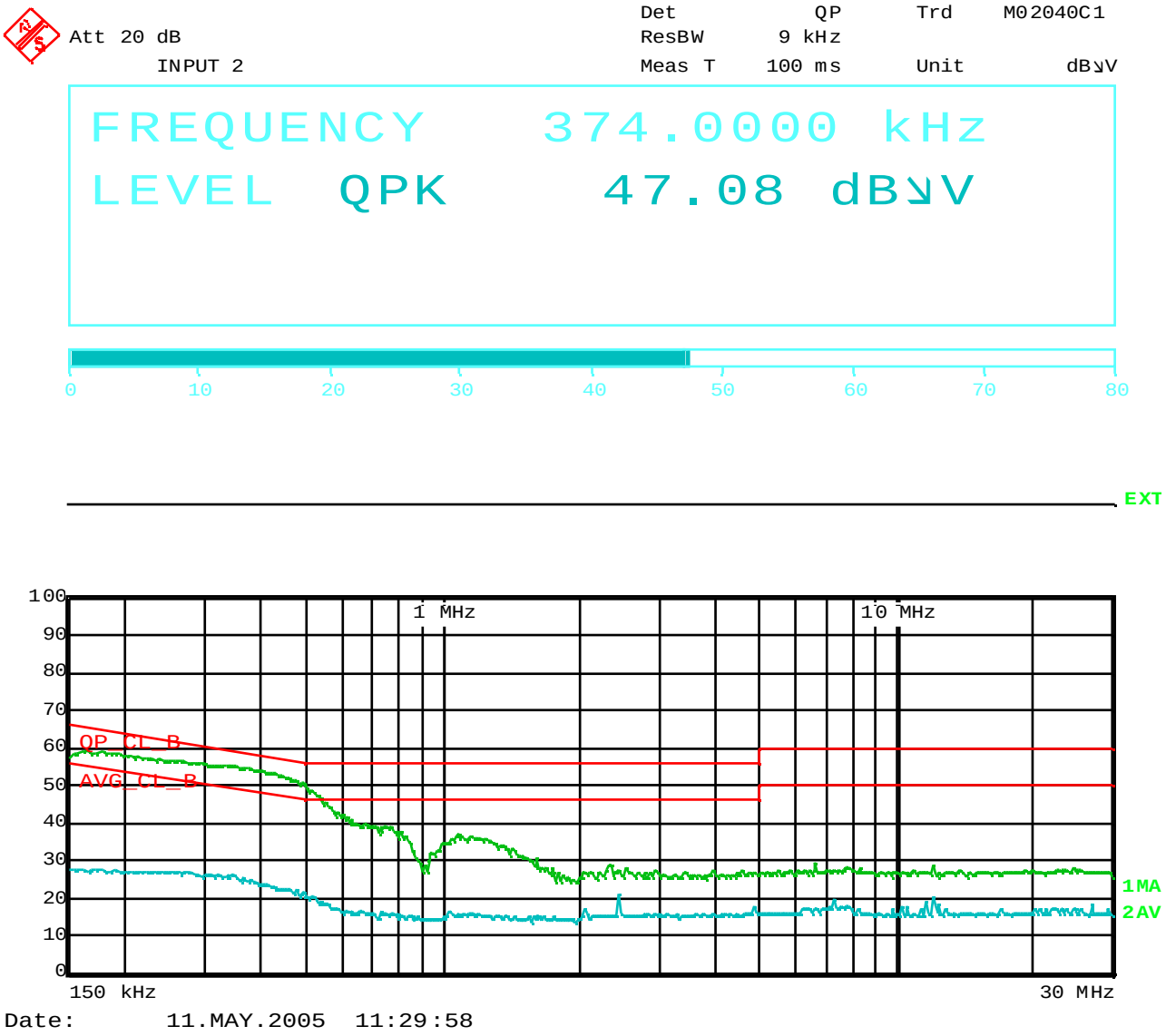


8.4.1 Sceptre Power supply

8.4.1.1 Neutral :

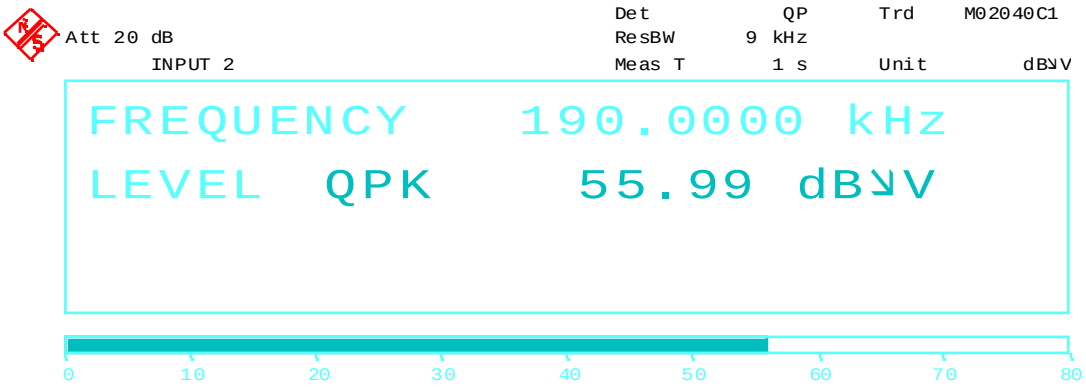
Since no peak emissions were detected above average or quasi-peak limits data collection measurement were not performed on the EUT.

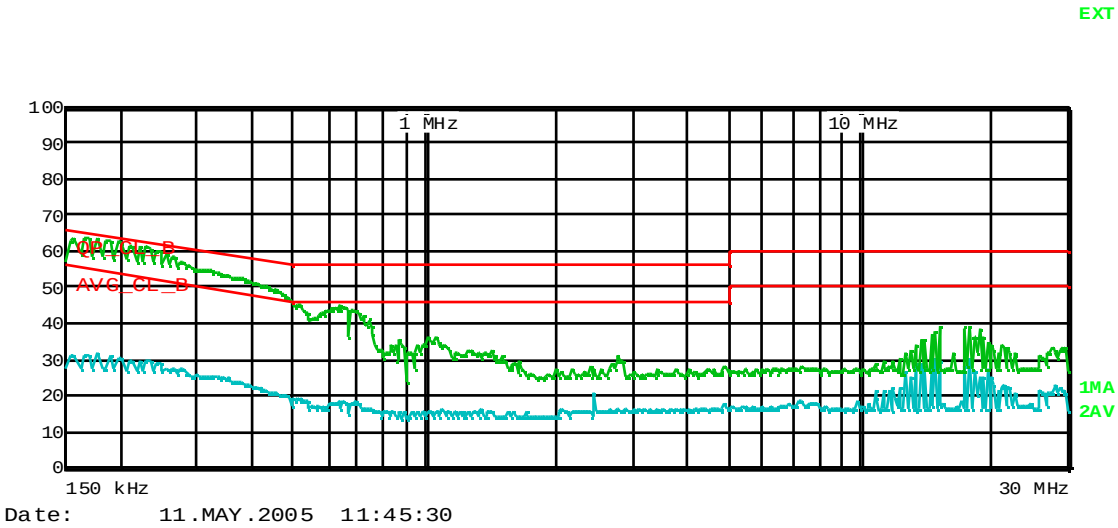
Legend: Blue curve represents average values
Green curve represents the peak values



8.4.1.2 LIVE :

Since no peak emissions were detected above average or quasi-peak limits data collection measurement were not performed on the EUT.





8.5 INTERPRETATION AND REMARKS :

The equipment complies with the §15.207 requirements, Class B

8.6 RADIATED EMISSIONS MEASUREMENTS (15.209):

Before final measurements of radiated emissions were made on the open-field three/ten meter range; the EUT was pre-scanned in the semi anechoic at one meter distance. This was done in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to insure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three/ten-meter, open-field test site. The EUT was placed on a conductive turntable on isolated support, table, 0.8 meter above the ground plane. At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters in order to determine the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarizations. The spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode. No video filter less than 10 times the resolution bandwidth was used. The range of the frequency spectrum to be investigated is specified in FCC Part 15. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

Summary of settings

ESI 7 EMI TEST RECEIVER IN RECEIVER MODE	
Peak measurement time	5 ms
step size	40 kHz
Preamplifier	ON
Preselector	ON
Resolution, Band With	120 kHz
Final Quasi Peak measurement time	1 s minimum
Final average measurement time	1 s minimum

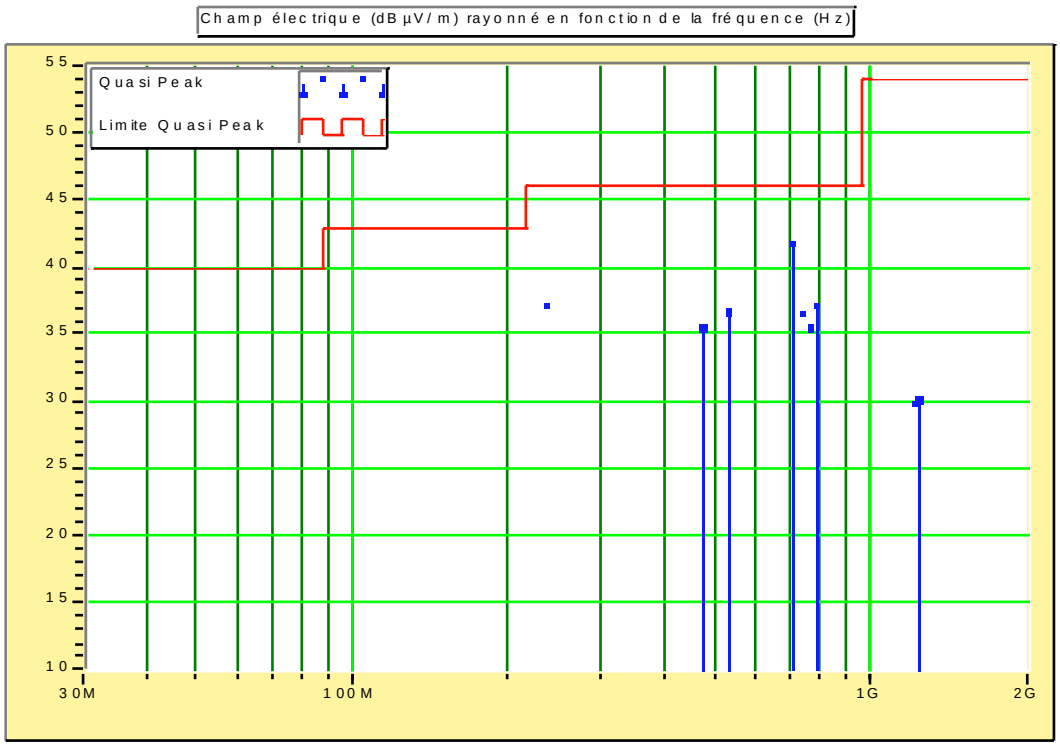
All readings are quasi-peak unless stated otherwise.

8.7 RESULTS (Class B):

The following data table lists the most significant emission frequencies, measured level, correction factor (includes cable and antenna corrections), corrected reading and the limit. The highest peaks are measured in quasi-peak detection mode at 3 meters distance.

Frequency (MHz)	Peak (dBµV/m)	Quasi peak (dBµV/m)	Margin (dB)	Polar.	Height (cm)	Angle (°)	Factor Corr. (dB)	Comments
235.940	37.48	37.18	-8.82	H	132	351	13.16	
471.864	36.83	35.54	-10.46	H	218	334	20.44	
530.783	37.27	36.65	-9.35	H	177	359	21.00	
707.739	43.52	41.67	-4.33	H	144	323	24.00	
737.223	37.63	36.53	-9.47	H	143	310	24.00	
766.757	36.92	35.47	-10.53	H	133	346	24.00	
788.846	38.11	37.06	-8.94	H	142	346	24.00	
1213.502	29.85	29.85	-24.15	H	143	62	29.85	avg
1233.459	30.11	30.11	-23.89	H	141	61	30.11	avg

Measurement done with Schlumberger power supply, no difference noticed with the Sceptre power supply



Spurious emissions measurement results from 2GHz to 25GHz:

A pre-scan measurement is done very close to the product (less than 10cm) with 100kHz RBW and a max peak detector. Then measurements are performed at 1 m with 1MHz RBW and a video averaging (10Hz) for spurious measurement (no averaging for the max power level measurement)

Spurious emissions are made with a permanent communication between Handset and Base using the frequency hopping. Both devices are far enough from each other to ensure that only one is measured.

Average limit at 1 m is 64 dBµV/m

Handset results

Frequency (GHz)	Peak (dBµV/m)	Factor Corr. (dB)	Comments
2.401	128.0	29.0	Emitter

Max spurious for all channels

Frequency (GHz)	Average (dBµV/m)	Noise Floor (dBµV/m)	Margin (dB)	Polar.	Height (cm)	Factor Corr. (dB)	Comments
3.600	NF*	45	-14.0	H/V	100	32.3	
4.820	51.0	47	-13.0	H	100	34.2	
7.330	NF*	52	-12.0	H/V	100	37.9	
12.160	NF*	55	-9.0	H/V	100	39.7	
16.840	NF*	56	-8.0	H/V	100	42.6	
19.636	NF*	56	-8.0	H/V	100	41.2	

Base results

Frequency (GHz)	Peak (dBµV/m)	Factor Corr. (dB)	Comments
2.401	126.0	29.0	Emitter

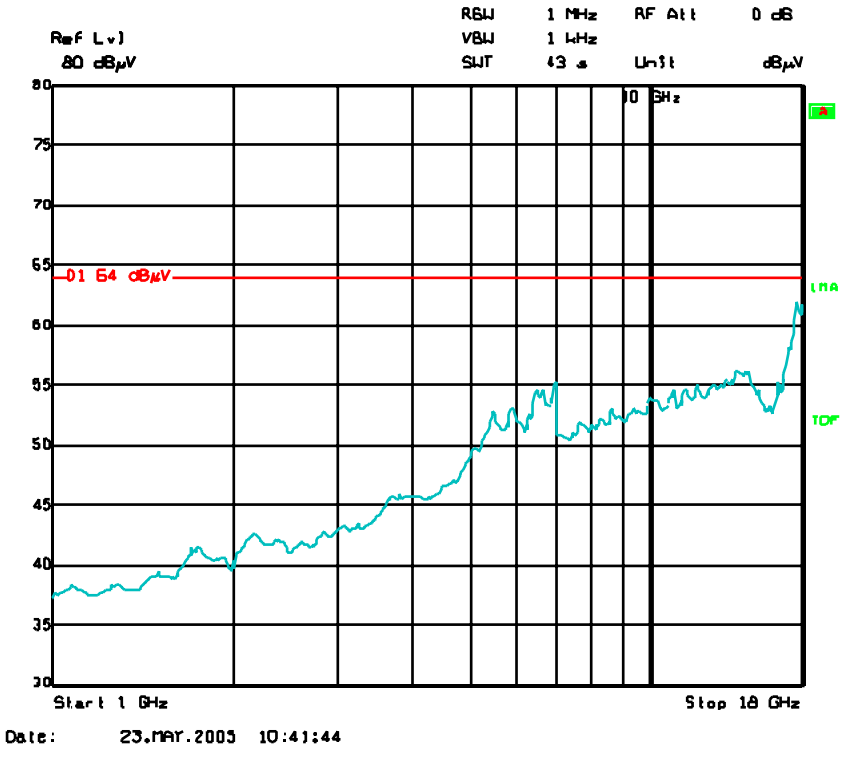
Max spurious for all channels

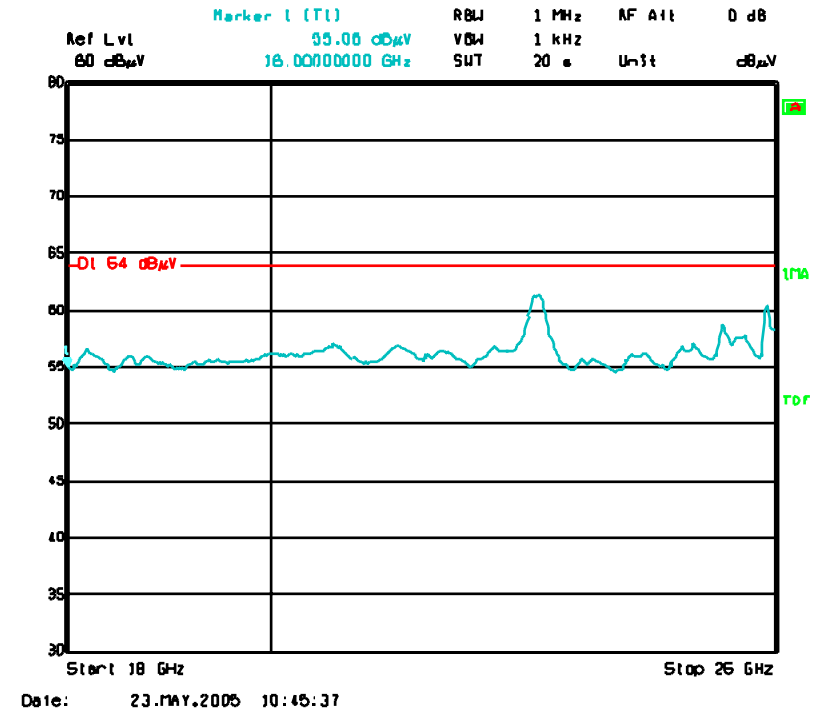
Frequency (GHz)	Average (dBµV/m)	Noise Floor (dBµV/m)	Margin (dB)	Polar.	Height (cm)	Factor Corr. (dB)	Comments
3.600	NF*	45	-14.0	H/V	100	32.3	
4.820	51.2	47	-13.8	H	100	34.2	
7.330	52.7	52	-11.3	H/V	100	37.9	
12.160	NF*	55	-9.0	H/V	100	39.7	
16.84	NF*	56	-8.0	H/V	100	42.6	
19.636	NF*	56	-8.0	H/V	100	41.2	

There is no radiation in restricted band. For the restricted band 2483.5-2500.0 MHz see measurements at band edge §9.8.4.

* NF means Noise Floor

Noise Floor





8.8 INTERPRETATION AND REMARKS :

The equipment complies with the §15.209 requirements, class B.

9 TEST ACCORDING TO CFR 47 Part 15 with all ITE functions activated:

Tests performed by Daniel RAUD at GYL Technologies laboratories on June 20, 2005.

9.1 REFERENCE DOCUMENTATION :

FCC part 15 (Sub part B) §15.107,15.109 of 2005 class B

9.2 CONDUCTED EMISSIONS MEASUREMENTS :

The power line conducted emission measurements were performed in a semi anechoic chamber manufactured by SIDT. The EUT was assembled on a non conductive 10 centimeters high wooden pallet. Power was fed to the EUT through a 50 ohm / 50 micro-Henry Line Impedance Stabilization Network (EUT LISN). The EUT LISN was fed power through an A.C. filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. The spectrum analyzer was connected to the A.C. line through an isolation transformer. The 50-ohm output of the EUT LISN was connected to the spectrum analyzer input through a Rohde and Schwartz 150 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 150 kHz. Conducted emission levels were measured on each current-carrying line with the receiver operating in the CISPR quasi-peak mode (or average mode if applicable

9.3 RESULTS :

The conducted emissions initial measurement consists of a prescan (tester in receiver mode), in order to determine the maximum quasi peak and average values.

- If the conducted emissions have limits showing a margin lower than 15dB, data collection measurement is performed on the six (6) highest frequencies to determine the compliance of the EUT.
- If the conducted emissions have limits showing a margin greater than 15dB, data collection measurement is not performed and the curves are given as evidence of compliance.

The following tables lists worst-case conducted emission data. Specifically: emission frequency, measurement level (including cable loss and transducer factors) in quasi-peak and average mode and margin.

The conducted test was performed with the EUT exercise program loaded, and the emissions were scanned between 150 kHz to 30 MHz on the NEUTRAL SIDE and LIVE SIDE, herein referred to as Neutral, and Live respectively.

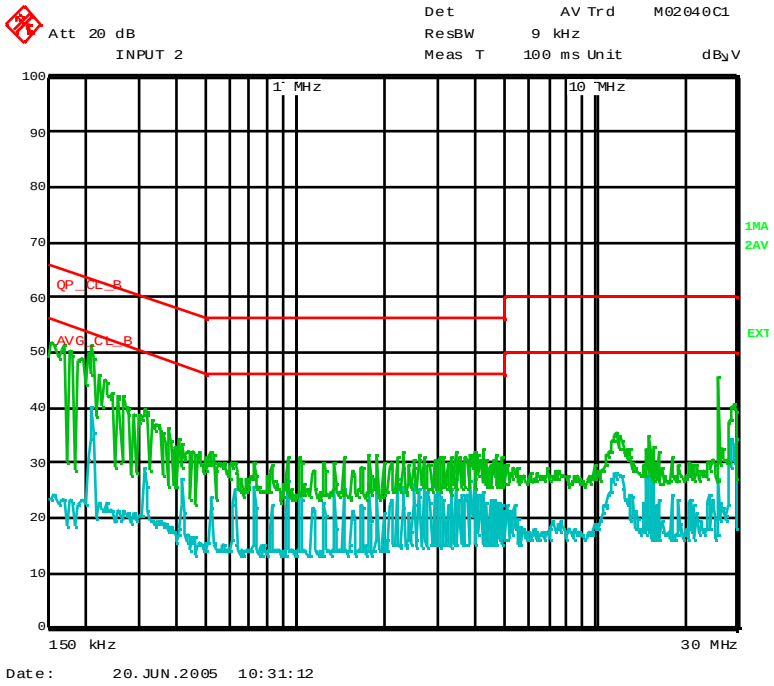
ESI 7 EMI TEST RECEIVER IN RECEIVER MODE	
Peak measurement time	5 ms
step size	4KHz
Preamplifier	OFF
Preselector	ON
Resolution, Band With	9 kHz
Final Quasi Peak measurement time	1 s minimum
Final average measurement time	1 sec minimum

All readings are quasi-peak unless stated otherwise.

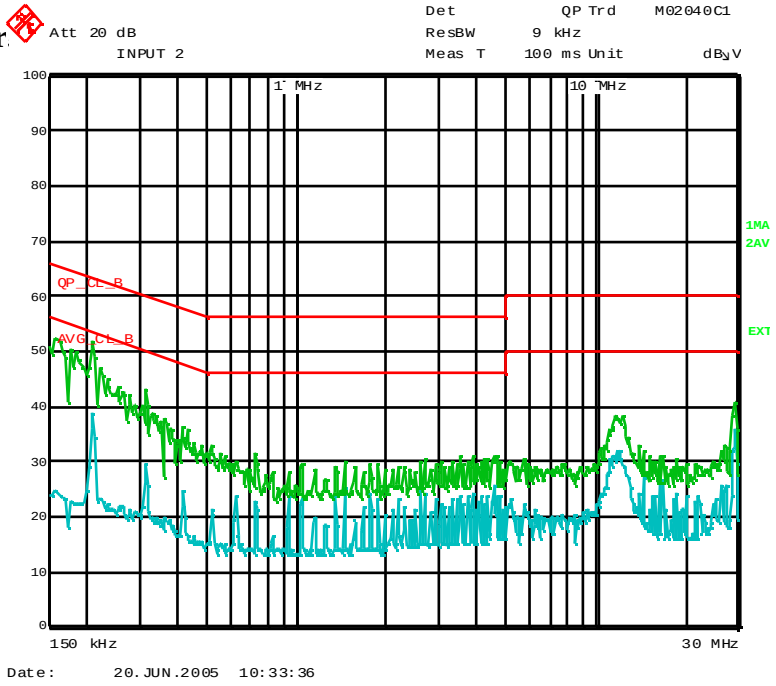
9.3.1 Live :

Legend: Blue curve represents average values

Green curve represents the peak values



9.3.2 Neutr



9.4 INTERPRETATION AND REMARKS :

The equipment complies with the §15.107 requirements, Class B

9.5 RADIATED EMISSIONS MEASUREMENTS :

Before final measurements of radiated emissions were made on the open-field three/ten meter range; the EUT was pre-scanned in the semi anechoic at one meter distance. This was done in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to insure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three/ten-meter, open-field test site. The EUT was placed on a conductive turntable on isolated support, table, 0.8 meter above the ground plane. At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters in order to determine the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarizations. The spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode. No video filter less than 10 times the resolution bandwidth was used. The range of the frequency spectrum to be investigated is specified in FCC Part 15. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

Summary of settings

ESI 7 EMI TEST RECEIVER IN RECEIVER MODE	
Peak measurement time	5 ms
step size	40 kHz
Preamplifier	ON
Preselector	ON
Resolution, Band With	120 kHz
Final Quasi Peak measurement time	1 s minimum
Final average measurement time	1 s minimum

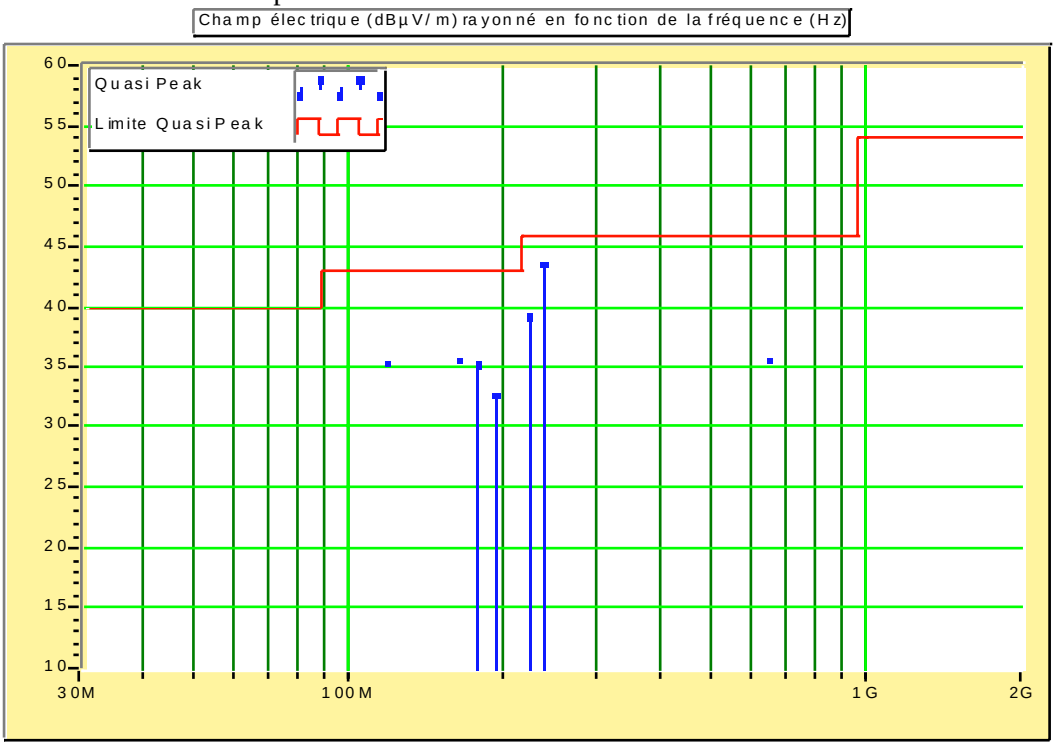
All readings are quasi-peak unless stated otherwise.

9.6 RESULTS (Class B):

The following data table lists the most significant emission frequencies, measured level, correction factor (includes cable and antenna corrections), corrected reading and the limit. The highest peaks are measured in quasi-peak detection mode at 3 meters distance.

Frequency (MHz)	Peak (dBµV/m)	Quasi peak (dBµV/m)	Margin (dB)	Polar.	Height (cm)	Angle (°)	Factor Corr. (dB)	Comments
117.981	37.32	35.46	-7.54	V	111	19	12.80	
162.198	36.61	35.63	-7.37	V	111	143	11.91	
176.972	36.91	35.33	-7.67	V	112	7	12.00	
191.714	34.55	32.74	-10.26	V	111	345	11.41	
221.193	39.91	39.27	-6.73	H	175	86	12.27	
235.940	44.21	43.56	-2.44	H	177	249	13.52	
648.870	36.68	35.74	-10.26	H	108	78	23.96	

Measurement done up to 12.5GHz



9.7 INTERPRETATION AND REMARKS :

The equipment complies with the §15.109 requirements, class B.

9.8 Intentional radiator operation within the band 2400 – 2483.5 MHz §15.247 :

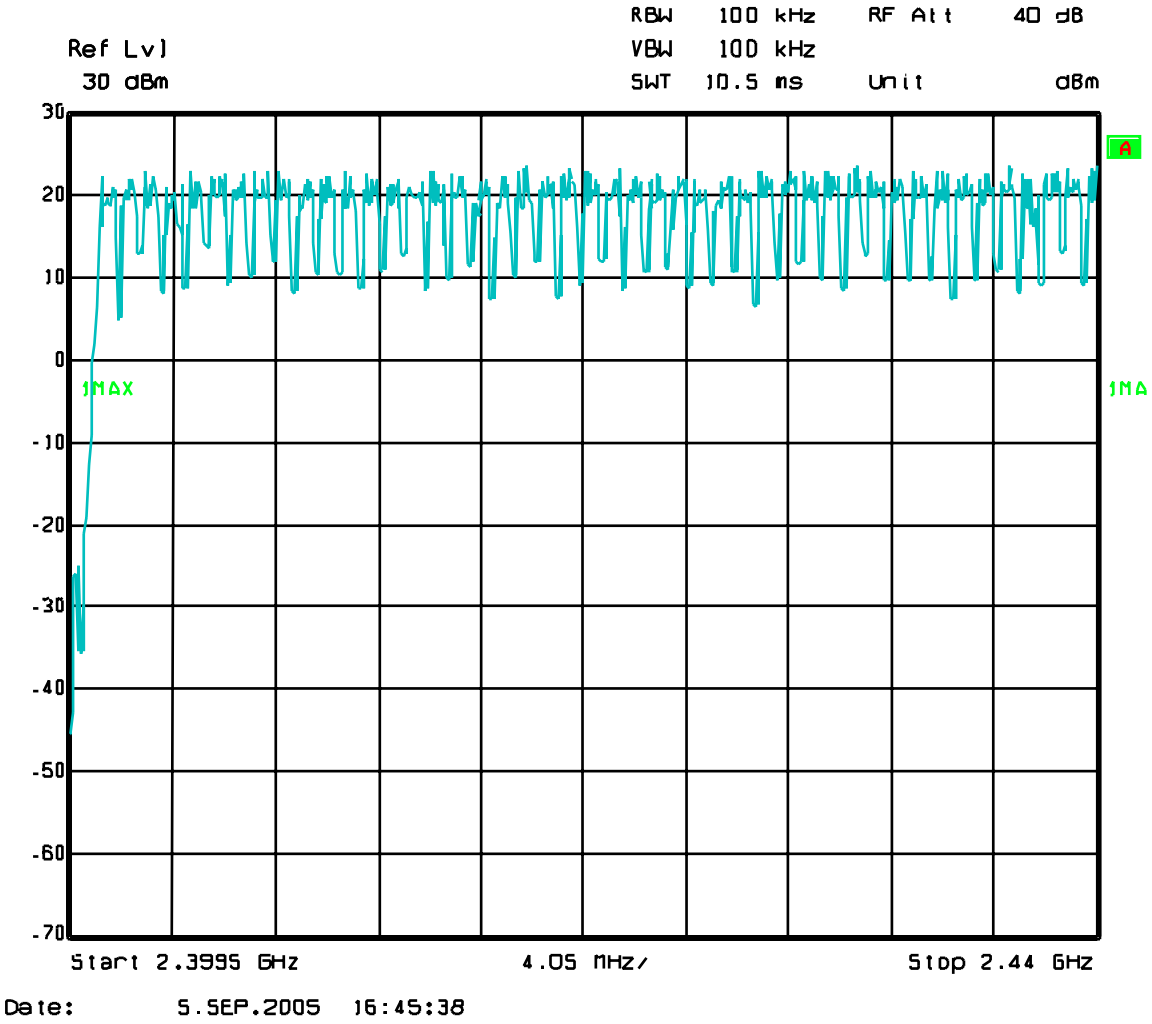
The system uses **95 channels** numbered in hexadecimal from 0 to 5E

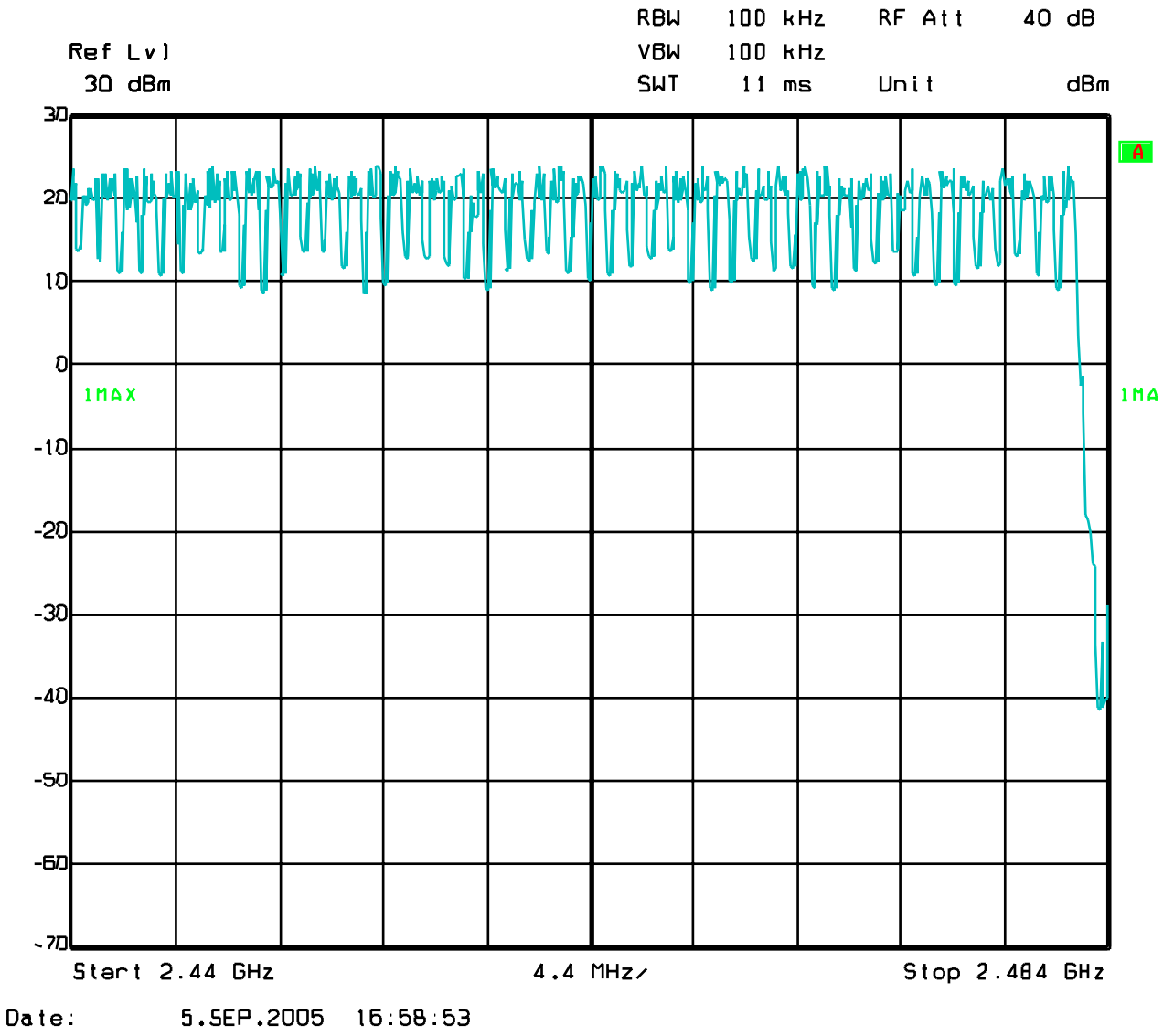
For details of frequency hopping technology used see Exhibit 7 frequency hopping description.

To make easier measurements a special test mode allow to select only one channel with its modulation.

Both Handset and base have the same radio module.

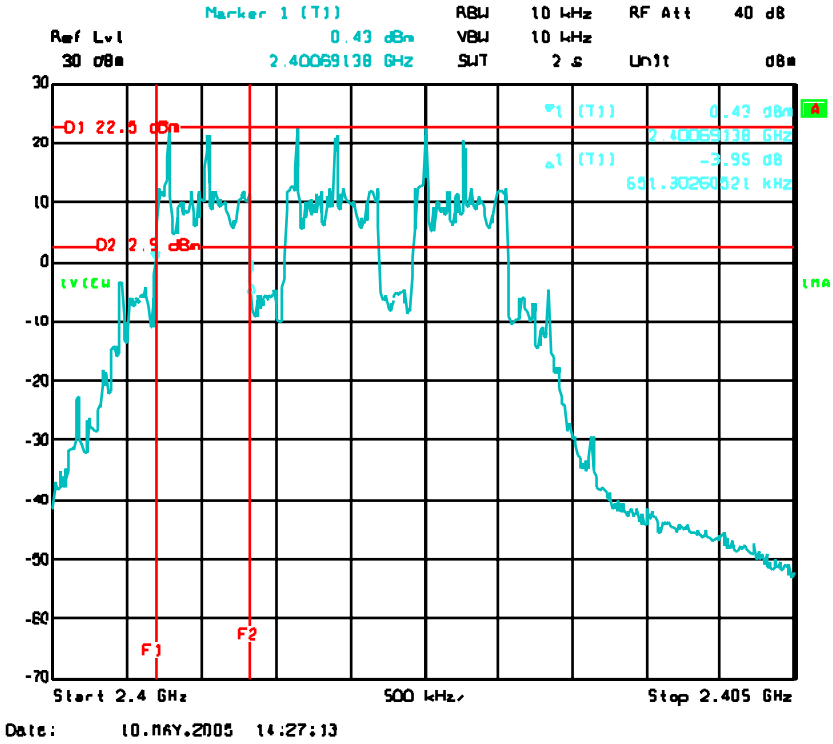
9.8.1 Frequency hopping channel separation (15.247 (a) (1))



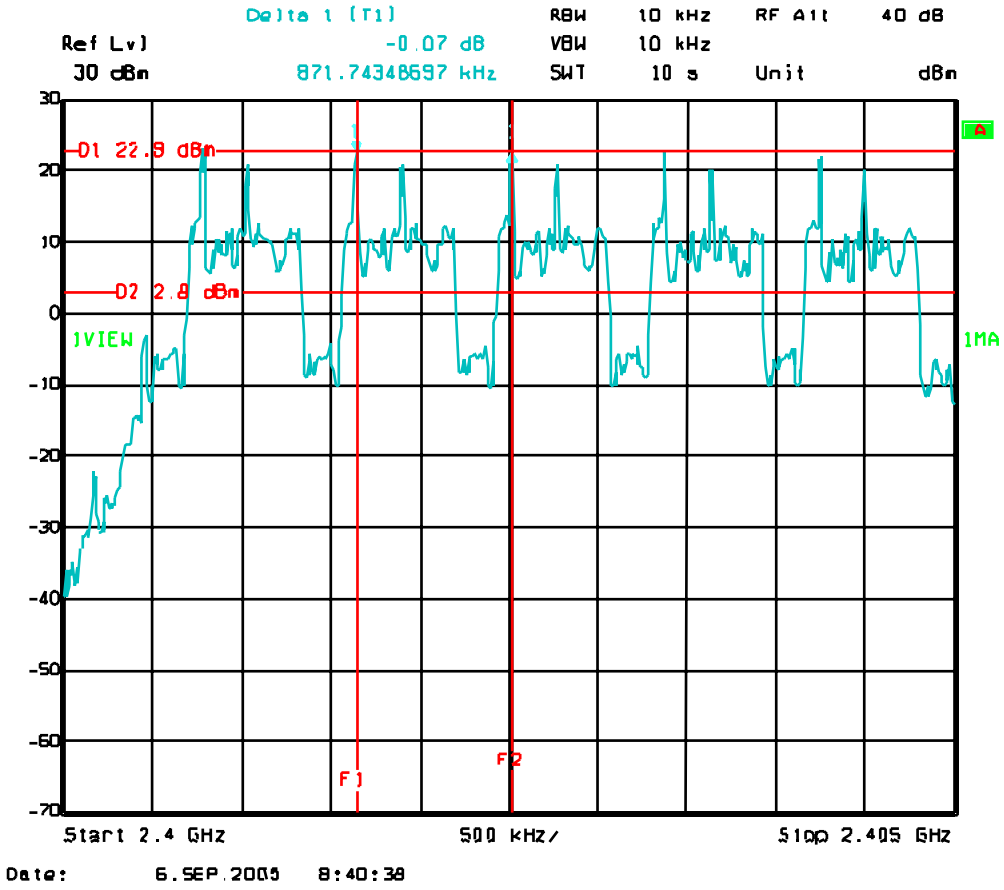

RBW 100 kHz
RF Att 40 dB
Ref Lvl
VBW 100 kHz
30 dBm
SWT 11 ms
Unit dBm
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
1MAX
A
1MA
Start 2.44 GHz
4.4 MHz/
Stop 2.484 GHz
Date: 5.SEP.2005 16:58:53

9.8.1.1 Handset

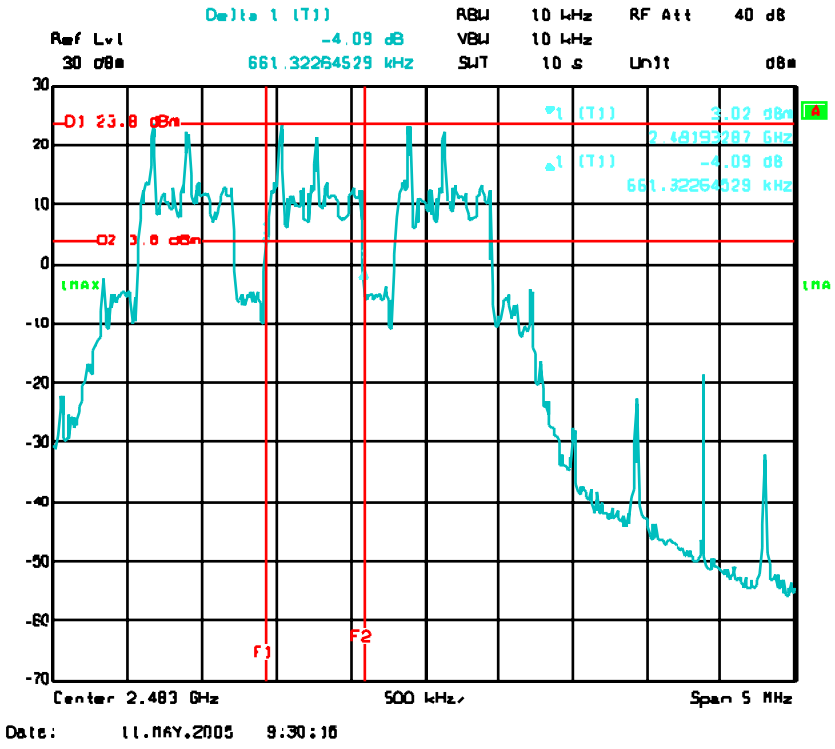
The 20dB bandwidth of each hopping channel is 652 kHz.

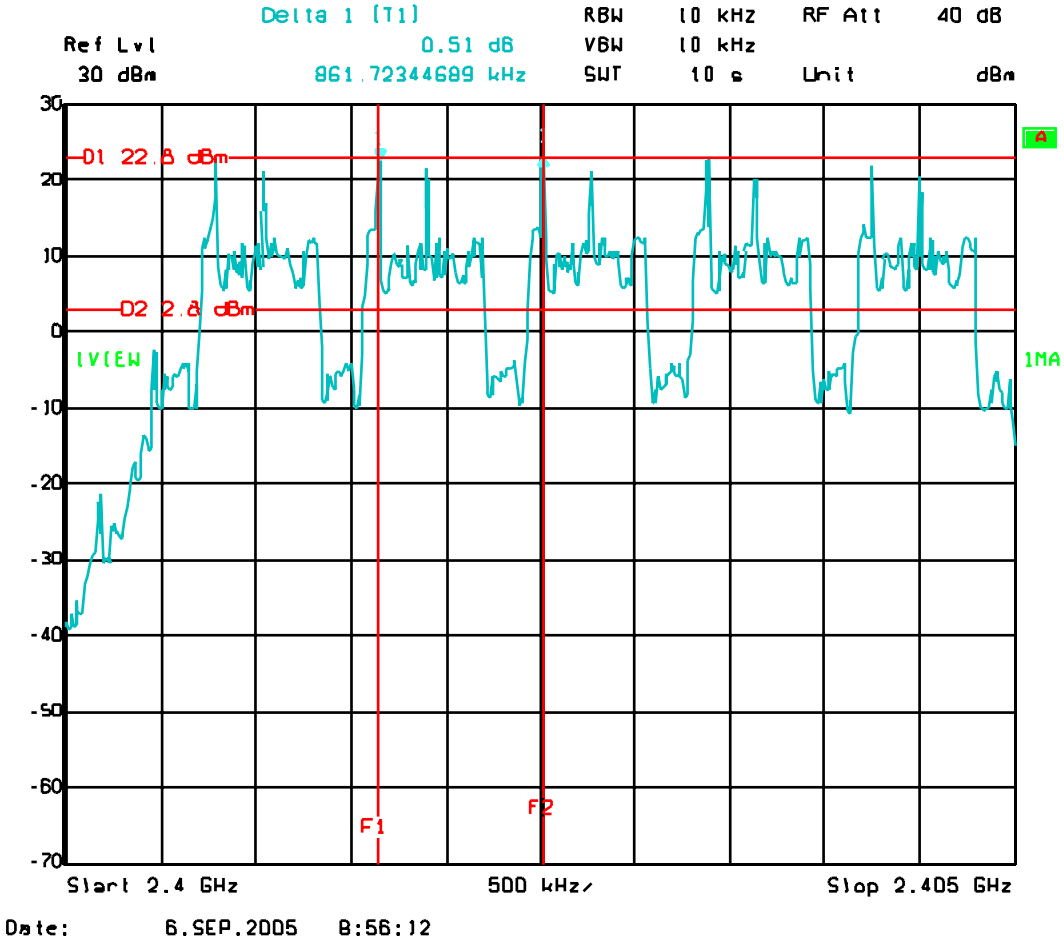


The channel separation is almost 870 kHz which is greater than the 20dB bandwidth.



9.8.1.2 Base


Delta 1 [T1]
-4.09 dB
661.32264529 kHz
RBW 10 kHz
VBW 10 kHz
SWT 10 s
RF Att 40 dB
Unit dBm
Ref Lvl
30 dBm
D1 23.8 dBm
D2 3.8 dBm
1MAX
1MA
F1
F2
Center 2.483 GHz
500 kHz/
Span 5 MHz
Date: 11.MAY.2005 9:30:16

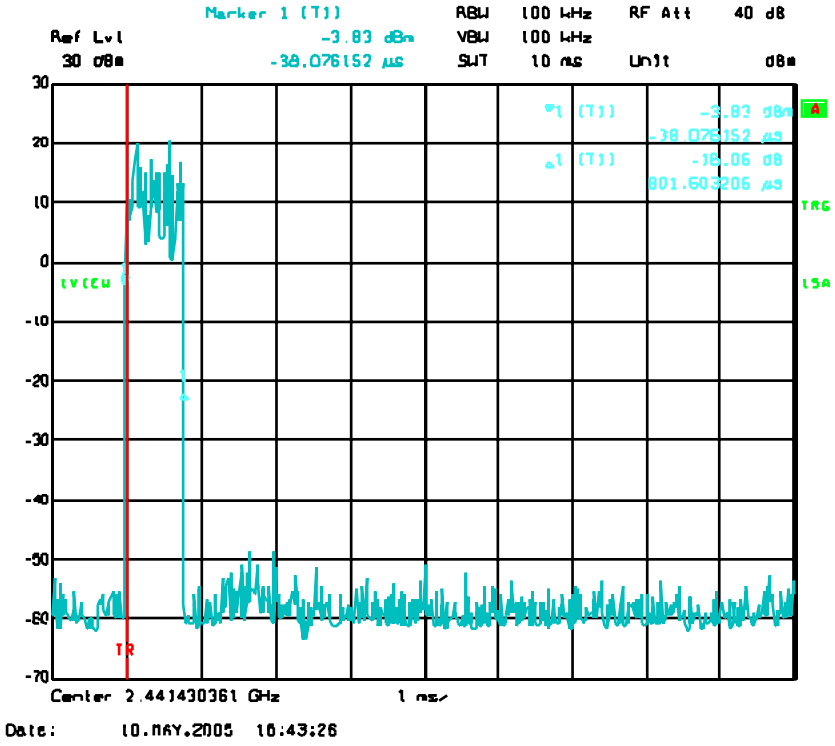

Delta 1 [T1]
0.51 dB
861.72344689 kHz
RBW 10 kHz
VBW 10 kHz
SWT 10 s
RF Att 40 dB
Unit dBm
Ref Lvl
30 dBm
D1 22.8 dBm
D2 2.8 dBm
1VIEW
1MA
F1
F2
Start 2.4 GHz
500 kHz/
Stop 2.405 GHz
Date: 6.SEP.2005 8:56:12

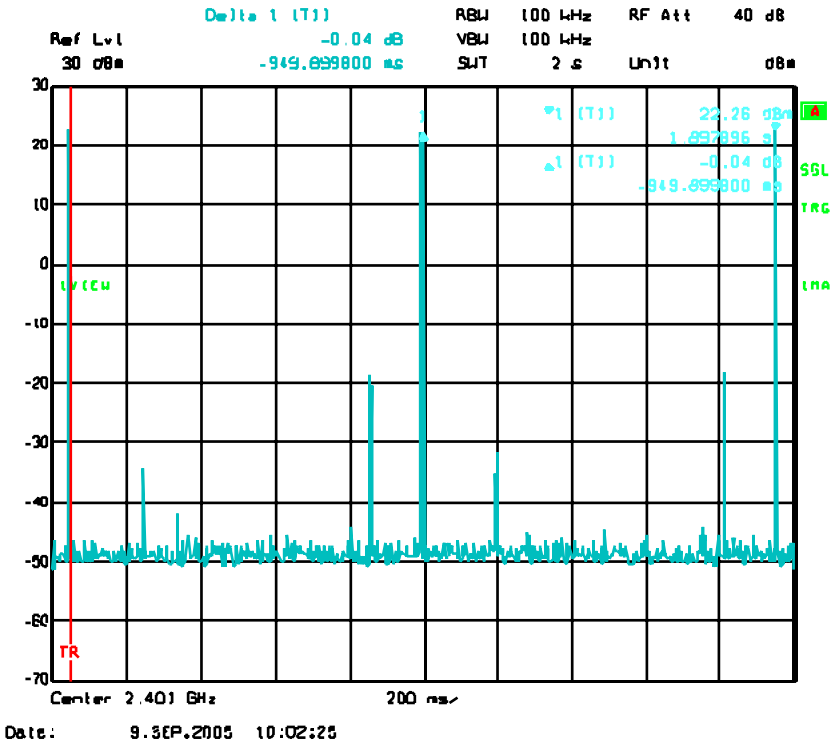
9.8.1.3 15.247 § (a)(1)(iii)

The system uses more than 15 channels in any conditions and the average time of occupancy on any channel is less than 0.4 seconds within a period of 38.0 seconds (0.4 * 95).

The measurement during a long transmission gives 802 µs every 950 ms on each channel so the average time within a period of 38.0 second is 33.8 ms which is less than the 400ms limit.

Handset





9.8.2 Maximum peak conducted output power (15.247§ (b) (1))

The maximum peak conducted power is measured at 24.6 dBm (0.288 W) the limit is 1W.

	BASE			HANDSET	
Results	**Power (dBm)**	Average (VBW = 10 Hz	Frequency (GHz)	**Power (dBm)**	Frequency (GHz)
Channel 00 (O)	24.5	-45.0	2.401053	23.7	2.401047
Channel 2F (47)	24.4		2.441663	23.9	2.441650
Channel 5E (94)	24.6		2.482271	24.1	2.482262

9.8.3 Antenna gain (15.247 § (b)(4)

The antenna gain is less than 6dBi. The maximum field strength measured at 1 m is 128dBµV/m for the handset and 126 dBµV/m for the base.

For the base :

P = 0.288 W, max level measured at 1 m is 126 dBµV/m for the base

E = square root (30PG)/d

G = ((E*d)^2)/(30*P)

With d = 1 m, E = 1.99V/m, that gives **G = 0.46 for the base**

For the handset :

P = 0.257 W, max level measured at 1 m is 128 dBµV/m for the handset

E = square root (30PG)/d

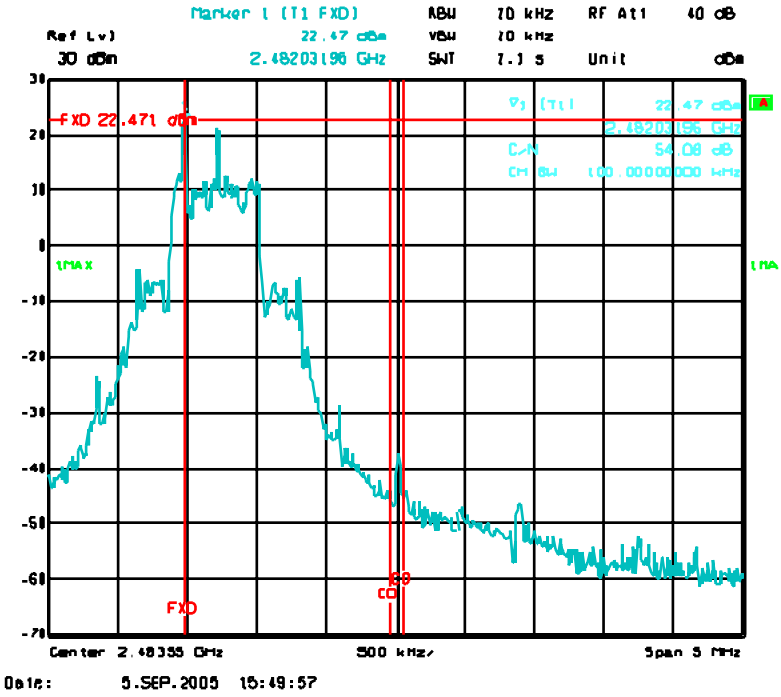
G = ((E*d)^2)/(30*P)

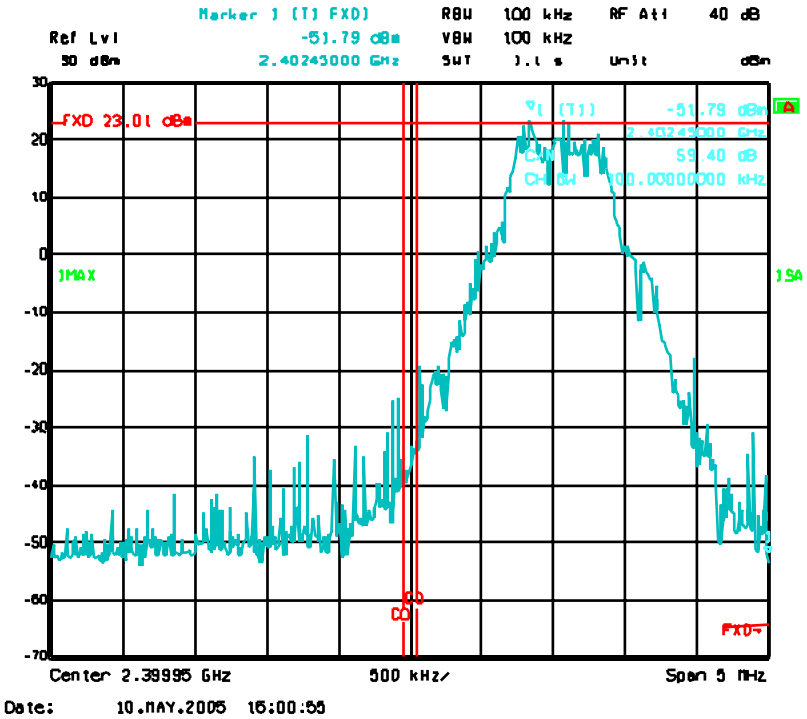
With d = 1 m, E = 2.51V/m, that gives **G = 0.82 for the handset**

That gives an antenna gain which is less than an isotropic gain certainly because of the situation of the radiator element inside the enclosure of the equipment.

9.8.4 Band edge (15.247 § (d))

In any 100 kHz bandwidth outside the frequency band, the level is at least 20 dB below that in the 100kHz bandwidth within the band contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. The worth case is just after the limit of the band. The measurement gives more than 54 dB.





That gives a peak level of (128-54) = 74 dBµV/m peak at 1 m which is over the average limit at 1 m (64dBµV/m).

As described in the FCC Public Notice DA 00-705 we use the alternate test procedure named "Marker-Delta Method".

Step 1: the peak power level (channel 00) is 24.5 dBm. The duty cycle correction factor is 41.9 dB.
Step 2: the band edge delta in 100 kHz is 54 dB.
Step 3: The calculated value for the band edge field strength is :

128 dBµV/m – 54 – 41.9 = **32.1 dBµV/m**

The result is far below the average limit of 64dBµV/m at 1 m

9.8.5 Exposition of public to radio frequency energy.

In the frequency range of this product, the limit of S is 1mW/cm^2.

With the formula given in OET 65 and the measurement done for the power and antenna gain, we can compute that the minimum distance between a body and the antenna is:

For
R = square root (257*0.82/(4*Pi*1))
R = 4.1 cm

For
R = square root (288*0.46/(4*Pi*1))
R = 4.3 cm

The safe distance if far lower if we consider the averaging possibility.

The normal use of this product is with the antenna near the hand at a distance greater than 5cm.

In accordance with bulletin OET 65 C, there is no need to make SAR evaluation for such device.

9.9 Antenna requirements (§15.203)

Not applicable because the antenna is located inside the base and the handset and are not replaceable without modifying the DECT module board. .

9.10 Measurement of frequency stability §15.215 (c)

The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Measurements were conducted according to the operating temperature range given in the installation guide

Frequencies (GHz)

Results	BASE				HANDSET			
Temperature	5°C		40°C		5°C		40°C	
Power Supply	97.5 V	115 V	97.5 V	115 V	5.1 V	6 V	5.1 V	6 V
Channel 00 (O)	2.401053	2.401053	2.401068	2.401069	2.401041	2.401040	2.401047	2.401047
Channel 2F (47)	2.441663	2.441663	2.441676	2.441677	2.441661	2.441661	2.441650	2.441651
Channel 5E (94)	2.482270	2.482271	2.482284	2.482284	2.482264	2.482264	2.482262	2.482262

Neither voltage nor temperature variations affect the frequency stability that is better than ±10 ppm